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State of California

The Resources Agency

Memorandum

Date : May 13, 2004

To :
Mr. Mark Gowdy
Water Resources Control Engineer
Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, Suite 200
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From : **Department of Water Resources**

Subject : Comments on the Public Review Draft Staff Report for the Control Program for Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel

The Department of Water Resources (DWR) has reviewed the "Public Review Draft Staff Report for the Control Program for Factors Contributing to the Dissolved Oxygen Impairment in the Stockton Deep Water Ship Channel (DWSC)." DWR appreciates that the development of the control program for the Dissolved Oxygen (DO) impairment has evolved over a long process with assistance from various stakeholders, such as the San Joaquin River Dissolved Oxygen Total Maximum Daily Load Steering Committee. DWR believes, however, it is important that the Regional Water Quality Control Board implement a Total Maximum Daily Load (TMDL) that is legally defensible and acceptable by the Environmental Protection Agency (EPA).

The draft staff report does not propose a TMDL that meets the requirements of the Clean Water Act (CWA) and its regulations. DWR recommends that the TMDL be revised to allocate the sum of loading capacity to point and non-point sources of pollutants or natural substances as required by the CWA, and not apportion load to non-load factors, such as flow and channel geometry. DWR believes it would be appropriate, however to include in the program of implementation for achieving water quality objectives a description of actions, such as those related to flow or channel geometry, that could be taken by other entities. For example, DWR supports implementation of a program that recommends cooperative efforts by agencies to help correct the low DO conditions through development of a large scale demonstration project to artificially aerate water within the DWSC.

Legal Basis for TMDL

The draft staff report proposes a process to establish a TMDL for the DO impairment in the designated segment of the San Joaquin River, now listed under CWA Section 303(d) (33 U.S.C Section 1313(d). The CWA, federal regulations, and the EPA Guidance for Developing TMDLs provide the legal authority for establishment of a TMDL. The TMDL must be established at levels necessary to attain and maintain the applicable water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge concerning

the relationship between effluent limitations and water quality. The Regional Board must establish a TMDL for all "pollutants" preventing or expected to prevent attainment of the identified water quality standards. (See 40 CFR section 130.7 (c).) Pollutant is defined as: dredged spoils, solid waste, sewage, chemical wastes, biological materials, heat, discarded equipment, rock, sand, and industrial, municipal, and agricultural waste discharged into water (33 USC section 1362(6); CWA Section 502(6)). Pollutant does not include flow of water or the shape of the channel.

The flow of water and shape of a designated channel are factors to be considered when determining the capacity of a segment of river to receive a load from pollutants without violating a water quality objective (40 CFR section 130.7 (c).) Here the Regional Board must establish a TMDL that addresses the load from pollutants that reduce oxygen concentration in the water to achieve or maintain the Basin Plan water quality objective for DO of 5 milligram per liter (mg/L), except during September through November when the objective is 6 mg/L. The TMDL must take into account the conditions of stream flow and other environmental conditions in order to determine appropriate loading capacity. In other words, the TMDL must adjust the loads allocated to point and non-point sources based on whether stream flow is high or low. The Regional Board does not have authority to revise flows, as this is a water rights function performed by the SWRCB.

The draft staff report proposing the TMDL for the DO impairment in the DWSC does not describe a TMDL supported by the CWA and its regulations. The TMDL must allocate the amount of pollutant matter or thermal energy that is introduced into receiving water without violating water quality standards, based on the loading capacity of that water. The loads are allocated from existing or future pollution sources that may be from point sources, or non-point sources, or natural background sources. The TMDL is the sum of the individual point sources, non-point sources and natural background allocations. (See 40 CFR section 130.2.) The CWA and its regulations do not include load allocations based on water flow or channel geometry and the staff report has no legal basis for allocating sixty percent of the TMDL to these factors.

The draft staff report notes that the SWRCB, in Water Rights Decision 1641, directed the Regional Board to develop a TMDL for the DO impairment. SWRCB indicated that the TMDL process is an appropriate course for long-term planning and ultimate improvement in DO concentrations and that it would "not take any water rights action to achieve the DO objectives until the TMDL is implemented" (D-1641, pgs. 78-79, and 148). The draft staff report apportions total oxygen demand loading capacity in equal amounts to oxygen demanding substances, DWSC geometry and

flows. This approach would result in the Regional Board avoiding proper implementation of a TMDL and would return the problem to the SWRCB without addressing approximately sixty percent of the TMDL loading capacity. This result is contrary to the intent of the SWRCB directive to implement a TMDL that addresses pollution loading in the DWSC.

For the above reasons, DWR recommends that the staff draft report be revised to establish a TMDL that apportions all of the loading capacity to point or non-point discharges as required under the CWA.

Proposed Elements of a Program of Implementation

DWR does not object to a program of implementation that provides for phased implementation of the TMDL so that necessary studies may be completed to determine appropriate load allocations of oxygen demanding substances. DWR encourages the Regional Board to obtain the necessary information so that it may implement a legally defensible TMDL that addresses control of oxygen demanding substances. DWR does not support, however, amendments to the Basin Plan that recommend implementation of actions that are described as meeting an amount apportioned to flow or to DWSC geometry. (See Draft Staff Report, p.10.)

DWR agrees that a program of implementation should include recommended actions by other agencies that are necessary to achieve the specified water quality objectives (See Water Code Section 13242.). DWR believes that the draft staff report should include proposed Basin Plan amendments that recommend actions by other agencies that help improve the DO in the DWSC. As discussed below, DWR is participating with the Bay Delta Authority to develop proposals, such as the demonstration aeration project, to alleviate the impaired oxygen problem in the deep water ship channel. DWR believes that such cooperative actions to improve DO should be acknowledged by the Regional Board and does not believe it is appropriate at this time to refer this problem back to SWRCB to consider in a water right hearing. Below is a brief description of actions by DWR and other agencies that could be considered as cooperative actions that would help improve low DO in the DWSC.

Operation of Barrier at the Head of Old River

As part of the South Delta Improvement Program, DWR plans to construct and operate the Head of Old River (HOR) barrier for the benefit of San Joaquin River salmon and issues associated with low DO in the San Joaquin River near Stockton.

The HOR barrier is closed for out-migrating salmon smolts for one month in the spring. DWR also closes the barrier to preserve flows in the San Joaquin River during the period of salmon in-migration from October through November. The fall barrier operation also helps maintain desired dissolved oxygen levels in the San Joaquin River by maintaining higher flows in the river.

Operation of the HOR barrier to increase dissolved oxygen concentration is not feasible, however, every time a DO sag is experienced because operation of this barrier can cause adverse impacts on endangered fish in the central Delta. Also, operation of the HOR barrier can cause water level and water quality problems in the south Delta (even if there were no State or federal exports). Therefore, DWR's operation of the HOR barrier to improve DO may be limited at times because of other competing beneficial uses of water in the Delta. DWR recommends that other actions, such as artificial aeration, should be considered to help meet the DO objective.

Artificial Aeration in the Stockton Deep Water Ship Channel

DWR and others may consider creating a Joint Powers Authority of interested stakeholders committed to alleviating the low DO in the San Joaquin River. Several stakeholders including the State Water Contractors, Port of Stockton, San Luis Delta Mendota Water Authority, and the San Joaquin River Group Authority have expressed a commitment to fund operation of a California Bay Delta Authority (CBDA) large scale demonstration project to artificially aerate water within the Stockton Deep Water Ship Channel to boost oxygen levels to meet water quality standards. CBDA is in the final stage of a feasibility study of the large scale demonstration project with the feasibility study report due in June 2004. After approval of the feasibility study, it is anticipated that CBDA would fund the large scale demonstration project, possibly through 2000 Water Bond (Prop 13) funds or Prop 50 funds.

Following the feasibility study report, DWR could embark on final design and construction of the large scale demonstration project. DWR currently funds water quality monitoring in the area and that monitoring could continue as surveillance to determine the effectiveness of the demonstration project in meeting the water quality DO objective.

The following is a proposed schedule of the actions for the demonstration project.

- Feasibility study and report of artificial aeration systems (underway through Prop 204 money at Jones and Stokes Associates (JSA) – due in June)
- Preparation of environmental documents for feasible solutions (Possibly a Negative Declaration/Finding of No Significant Impacts would be required and could be completed by Jones and Stokes Associates under contract to CBDA)
- Engineering of large scale demonstration project (possibly done through DWR using Prop 13 or Prop 50 funds)
- Contracting out the operation and maintenance of the facility (Port of Stockton would contract for the work since it would have a similar facility nearby.)

Following the large scale demonstration it may be determined that the combination of the use of the Head of Old River barrier and the use of Artificial Aeration in the Stockton Deep Water Ship Channel, and any other load related actions implemented through the TMDL for DO that SWRCB may impose, could address the low DO levels in the channel. If an approach is found, a long term operation could be instituted. DWR recommends that these actions be implemented before SWRCB pursues any actions affecting water rights for purposes of using flow to meet the low DO problem.

If you have any questions or would like additional information, please contact Paul Marshall of my staff, at 653-2118 or email marshall@water.ca.gov, or Cathy Crothers of DWR' Chief Counsel Office, at 653-5613 or email crothers@water.ca.gov.

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